Viet Nam

Rural Infrastructure Development and Living Standard Improve (I) (II)

External Evaluator: Chiaki Nakamura

Field Survey: September 2005

1. Project Profile and Japan's ODA Loan

Map of project area
(Target area: the whole land of Vietnam)

Bike riders passing along the road constructed by this project

1.1 Background

Vietnam has an area of 329,241km^2 and a population of 82.06 million[1], and its main industries are agriculture, forestry and fisheries, and mining. The country has tried to shift to a market economy, and has accomplished remarkable economic growth since the introduction of "Doi Moi" policy in 1986. Meanwhile, the socio-economic infrastructure was significantly deteriorated owing to the Vietnam War (1960-1975); there was also social distortion such as the economic disparity between urban and rural areas resulting from the rapid economic growth. Particularly, the development of rural areas, where about 77%[2] of the entire population lives, had not been paid enough attention since the war, and even basic infrastructures, such as roads, water supply and electrification, had not been upgraded. Thus, a development project with a strategy of improving the basis of people's livelihood in these areas and promoting industries, including agriculture, was needed for the stabilization of society.

1.2 Objective

The project's objective was to improve basic infrastructure in rural and regional areas of Vietnam by constructing or rehabilitating the road network as well as water supply and electricity distribution systems, and thereby ameliorating the living conditions and economic development in these areas.

1.3 Borrower/Executing Agency

Borrower: The Government of the Socialist Republic of Viet Nam

[1] As of October 2004
[2] Vietnam Households Living Standards Survey 2002

Executing Agency: Ministry of Planning & Investment (MPI)

1.4 Outline of Loan Agreement

	Phase I	Phase II
Loan Amount/ Disbursed Amount	7,000 million yen/6,854 million yen	4,000 million yen/3,509 million yen
Exchange of Notes Loan Agreement	April 1995 March 1996	January 1997 March 1997
Terms and Conditions - Interest Rate - Repayment Period (Grace Period) - Procurement	 2.3%/year (2.1 % only for water supply) 30 years 10 years General untied	 2.3%/year 30 years 10 years General untied
Final Disbursement Date	July 2002	September 2002
Main Contractors	Local enterprise	Same as in the left
Consulting Service	OPMAC, KSC Consultant, Taiyo Consultant, KATAHIRA & ENGINEERS Inc , JAVIDEC International	OPMAC, KSC Consultant, KATAHIRA & ENGINEERS Inc, JAVIDEC International
Feasibility Study (F/S) etc.	Each provincial people's committee and the Electricity of Vietnam conducted F/S.	Same as on the left

2. Evaluation Result

2.1 Relevance

2.1.1 Relevance at the time of appraisal

The Sixth Five-Year Socio-Economic Development Plan (1996-2000) has identified poverty reduction and rural and regional development as critical issues of social development. The State Planning Committee (SPC, current MPI) developed the following development plan, targeting the road network and water supply and electricity distribution systems, and this project deserved high priority due to its objective of achieving these policies and strategies.

- Improvement of regional roads: Rehabilitate/improve provincial (5,000-7,000km), district (2,500-3,000km) and commune roads (5,000-10,000km) and bridges (10-15km) by 2000.
- Electricity Sector: Ensure that 90% of communes are provided electricity by 2010. (Plan

an electrification project aimed at 500 villages a year.)

- Water Sector: Ensure that 80% of the urban (including suburban) and 60% of the rural population are provided clean water by 2000. (Conduct rehabilitation of existing facilities and installation of water-supplying facilities at about 40 places a year.)

2.1.2 Relevance at the time of evaluation

The current development plans, as well as the Seventh Five-Year (2001-2005) and the Eighth Five-Year Socio-Economic Development Plans (2006-2010)[3], include the objectives as described below and continuously stipulate poverty reduction and development of rural and regional infrastructure as principal objectives of social development.

- Improvement of regional roads: Improve provincial and district roads and ensure that 100% of communes are accessible by car by 2010.
- Electricity Sector: Ensure that 100% of communes are provided electricity by 2010.
- Water Sector: Ensure that 95% of urban and 75% of rural population are provided clean water by 2010.

Moreover, high priority is placed on the improvement of rural public services in the Comprehensive Poverty Reduction and Growth Strategy (CPRGS, 2002-2005)[4], of which the main policy is to increase the economic opportunities and to improve the living conditions of poor people by improving accessibility to public services in poverty areas. The project still has a priority in Vietnam for the plans mentioned above.

2.2 Efficiency

2.2.1 Selection process for sub-projects and outputs

The project was planned to conduct small-scale sub-projects, on the basis of the feasibility study (F/S) in the road, electricity, water supply sector that was made by the People's Committee of each province and the Electricity of Vietnam. The selection procedure and criteria for the sub-projects are as described below.

Selection Procedure for Sub-projects

(1) Sub-project plans which has been approved (or were in the process of approval) by local governments on the basis of the F/S are proposed to MPI.

(2) MPI decides the priority of the plans.

(3) The project consultants implement a field survey (December 1997 to March 1998) and examine the original subproject list proposed by MPI.

[3] The Plan was submitted to and approved in the National Congress of the Communist Party of Vietnam in April 2006. This ex-post evaluation referred to the final draft as of September 2005.

[4] The Government of Vietnam has decided to integrate the basic principle of CPRGS into the Eighth Five-Year Socio-Economic Development Plan (33rd Direction by Prime Minister, issued September 2004), and is advancing coordination through consulting with donors.

(4) Sub-projects are then identified by MPI based on the results of the survey and the examination.

Table 1. Selection Criteria for Sub-projects

Targets	Selection Criteria
Road	・ Traffic volume ・ Accessibility to existing road network ・ Development potential (of industry, tourism, agriculture products, marine products, etc.)
Electricity	・ Level of electrification of communes ・ Accessibility to the existing power grids ・ Undeveloped communes and provinces with low level of electrification ・ Areas with a high percentage of poor people
Water	・ Functional decline ・ Leakage ratio ・ Populated towns ・ Districts which need water utility capacity above a certain level (5,000 m^3/day) ・ Development potential (in priority development regions etc.)

Table 2 shows the project plans at the time of appraisal, those revised according to the results of a field survey conducted by the consultants of the project[5], and the actual performances. As shown in the table, the outputs of the modified project plans were significantly increased in the road and electric power sector as compared to those of the initial plans. Although the project performances turned out nearly as planned, due to delay in the distribution of sub-projects construction fund, weather conditions and geographical location of sub-projects, the sub-projects suffered significant delays. As a result, sub-project outputs were modified and slightly reduced.

Table 2. Outputs in Plans, Revised Plans and Actual Performance

	Plans (at Appraisal)	Revised Plans	Actual Performance (at Ex-Post Evaluation)
Phase I			
(1) Road	Rehabilitation/improvement of roads (approx. 800km)	Rehabilitation/improvement of provincial and district roads (154 projects, road length 1,140.62km through 56 provinces)	154 projects, road length 1,140.82km through (56 provinces)
(2) Electricity	Construction/improvement of the electricity distribution system (60 non-electrified villages)	Construction/improvement of the electricity distribution system (168 projects, line length 9,120.2km, total capacity 237,139kVA) (54	168 projects, line length 8,381.3km, total capacity 221,546kVA (54 provinces)

[5] Though outputs were modified, project periods and costs were not modified after the field survey.

		provinces)	
(3) Water	Construction/improvement of water supply stations (20 sites) (More than 5,000m^3/day)	Construction/improvement of the water supply stations (13 sites) (12 provinces)	13 sites (12 provinces)
(4) Consulting services	Review of the F/S, procurement services, monitoring and evaluation and management services	No modification	As planned
Phase II			
(1) Road	Rehabilitation/improvement of provincial roads (300km), urban roads (200km) and bridges (220km)	Rehabilitation/improvement of the road network (142 projects, road length 1,094.9km) (57 provinces)	142 projects, road length 1,056.25km (57 provinces)
(2) Electricity	Construction/improvement of the electricity distribution system (15 non-electrified villages, line length 800km, 100 transformers, total capacity 10,000kVA)	Construction/improvement of the electricity distribution system (191 projects, line length 3,967km, total capacity 92,213kVA) (56 provinces)	191 projects, line length 3,632km, total capacity 71,952kVA (56 provinces)
(3) Consulting services	Review of the F/S, procurement services, monitoring and evaluation and management services	No modification	As planned

2.2.2 Project period

Although the duration of the project through Phase I and II was from March 1996 to December 1999 (for 46 months) in the plan, it actually took from March 1996 to December 2002 (82 months), extended by 78% of the plan. The project was extended due to the following reasons; (1) delay in hiring consultants (in fact, consultant agreement was concluded in December 1997), (2) delay in selecting sub-projects[6], (3) output change and delay in land acquisition (road and water sector), (4) delay in procurement and construction of pumps and pipe materials (water sector) and extension of construction period (electricity).

2.2.3 Project cost

Although the total project cost as planned was 12,942 million yen (Yen loan amount: 11 billion yen), the actual performance costs were 17,388 million yen (Yen loan amount: 10,363 million yen), 34% over the planned level. Actual expenditure was increased due to change of outputs, delay in implementation, change in the method of transportation and change in distribution pipe location. The breakdown of project costs for the respective sectors is listed below.

Table 3. Planned Project Costs and Actual Performance Costs by Sector

	Sector	Plans (at Appraisal)	Actual Performance (at

[6] In Phase I and II, it took a long time from the approval of the investment decision to construction being commenced because of delays in selecting sub-projects. Furthermore, it took time to raise the funds in the local currency due to the increases in project costs caused by inflation and other things. As recommended by the "SAPS" conducted in 1998, however, more concrete selection criteria for sub-projects were established after Phase III. Thus, it is acknowledged that the project's issues were successfully improved in the following project.

			Ex-Post Evaluation)
Phase I	Road	3,225 million yen	6,087 million yen
	Electricity	2,330 million yen	2,472 million yen
	Water	2,294 million yen	1,840 million yen
Phase II	Road	3,220 million yen	4,147 million yen
	Electricity	1,073 million yen	2,042 million yen

The project cost was increased due to modification of the contents of the project and there was a delay in the duration of the project, but these were mainly caused by actual outputs increasing beyond what had been previously planned. Consequently, it can be said that the efficiency of the project had no major problems.

2.3 Effectiveness

2.3.1 Road[7]

The project improved 10% of unpaved provincial roads (13,454km) and 2% of unpaved district roads (33,215km). Based on the results of the monitoring research in the road project conducted by the project consultants (in July 1999 and November 2000) and the results of the case study[8] conducted in the ex-post evaluation, the effectiveness of the project in the road sector is summarized as below.

(1) Traffic volume

At the time of ex-post evaluation, the study of traffic volume in the district and communal roads had not been conducted, so the actual figures were not available; nevertheless, it was found from interviews with the executing agency and beneficiary surveys that traffic volume by all modes (especially bicycles and motorcycles) has increased. On the other hand, where only a section of the road was improved, the traffic volume was not increased so much. This is borne out by the fact that the road works of the project consisted primarily of small-scale repair of a part of the provincial, district and communal roads, and there remains an issueto realize the effectiveness of the project in the future[9].

(2) Reduction of travel time

In beneficiary surveys, over 90% of respondents answered that travel was reduced after the project. The respective amounts of time required for traveling from villages to public offices, agricultural goods transportation and merchandise transportation have shortened throughout the year, especially in the rainy season (shortened by 25 minutes on average). Travel time is generally reduced because more people can ride motorcycles and bicycles on the better roads.

[7] Pavement ratio of rural roads (2004): Provincial roads: 53.6% (11,657km); District roads: 20.2% (9,106km); Communal roads: 2.2% (2,922km) (Source: Vietnam Managing Public Expenditure for poverty reduction and growth, 2005.)

[8] For the purpose of selecting areas with comparatively high and low facility use rates and finding contributive and disincentive factors, the four provinces Quang Tri, Thua Thien Hue, Quang Nam and Quang Ningh Provinces were selected as case study subjects. Inspection of sub-project sites of the road, electricity and water sectors was implemented in the subject areas. The total sample size of the case study was 90 to 120 residents for each sector (grand total of 300).

[9] Taking advantage of lessons learned, selection criteria were revised in the Small Infrastructure Improvement Project for Poverty Areas (2) (approved March 2006). In the new criteria, attention was given to further activation of a road network and greater importance was placed on access to rural main roads rather than individual small projects.

2.3.2 Electricity[10]

Before the project (1996), 73.4% of households and 81.9% of communes were electrified nationwide. 359 communes and approximately 297,000 households were newly electrified by the project. Thus, the project electrified 24% of non-electrified communes (1,501 communes) and 9% of non-electrified households (33,780,000 households).

Table 4 shows the number of electrified communes and households, household electrification ratio and electricity sales volume in three provinces[11] where the case studies were conducted. According to the results of the monitoring research in the electrification project conducted by the project consultants (in August 1999 and November 2000), the number of communes and households utilizing electric power and household electrification ratio increased not only in each province, but also all over the country[12]. The power sector has made several efforts to expand the service population and service areas (e.g. low-income households could suspend connection fees until harvest season). It is thought that those efforts have caused the increase in electricity usage.

Table 4. Electrification in the Target Areas of Field Study

	Quang Tri		TT Hue		Quang Nam	
	1999	2004	1999	2004	1999	2004
Number of electrified communes	7	14	8	9	3	3
Number of electrified households	4,518	7,875	7,151	10,018	2,371	2,584
Household electrification rate (%)	99	100	81	97	94	99
Electricity sales volume (Mwh)	1,299	3,171	2,142	5,640	405	528

Source: Provincial Power Company in each province

2.3.3 Water supply

Before the project (1990-1996), only 36% of the population had access to an improved water source (58% in 2004)[13]. Since the water supply sector project was conducted in 13 sub-projects in 12 provinces out of the 61 provinces in Vietnam, the contribution of the project in terms of improvement of water facilities nationwide seems to be on a small-scale[14]. Based on the results of monitoring research in the water supply project conducted by the project consultants (in May 2003) and the results of the case study conducted in the current

[10] Electrified communes: 8,619/9,024 (95.5%), Electrified households: 11,767,000/13,325,000 (88.9%) (as of the end of June 2005) Source: EVN

[11] The case study in the electricity sector was not conducted in Quang Ninh Province.

[12] No nationwide study in electricity sales volume had been conducted at the time of ex-post evaluation.

[13] Source: The Five-Year Socio-Economic Development Plan 2006-2010

[14] The number of water supply facilities throughout Vietnam is 190 (in 2000).

research, the effectiveness of the project in the water supply project is summarized below,

(1) Water supply performance

Table 5 shows plans and performances in the entire water supply project on the results of monitoring research. Capacity of supply station achieved 100% of the original target, but the service population achieved only 35% of the original target[15]. Particularly, in 5 (Bac Quang, Kim Son, Buon Ho, Chu Pah and Chan May) out of 13 areas, the service population did not go over 10% of the target. Factors responsible for under-achievement are: (1) due to low living standards, people cannot afford to connect their homes to the water supply; (2) no financial resources were available to develop a pipe system; and, (3) due to a low rate of urban growth (in Bac Quang, Chan May and Chu Phu, mainly due to sluggish settlements in the industrial parks), demand for water use is still limited.

Table 5. Water Supply Plans and Performances of the Project

Sub-projects	Maximum water supply (m^3/day)		Average daily water supply (m3/day)		Facility utilization rate (%)		No. of water supplied population		
	Plan	Performance	Plan	Performance	Plan	Performance	Plan	Performance	%
Phu Tho	6,000	6,000	6,000	1,922	100	32	27,500	11,300	41
Dong Trieu	2,000	2,000	1,981	650	99	33	9,090	6,000	66
Bac Quang	2,000	2,000	1,700	280	85	14	9,230	500	5
Kim Son	3,000	3,000	2,810	0	94	0	14,175	0	0
Cua Lo	3,000	3,000	2,779	752	93	25	22,500	5,340	24
Ky Anh	3,000	3,000	2,644	829	88	28	11,250	6,050	54
Bao Loc	6,000	6,000	6,000	4,379	100	73	43,250	35,721	83
Buon Ho	2,700	2,700	2,291	86	85	3	16,450	1,386	8
Chu Pah	2,000	2,000	1,975	118	99	6	8,400	690	8
Chan May	6,000	6,000	6,000	350	100	6	32,000	2,150	7
Lao Bao	3,000	3,000	2,858	1,200	95	40	7,890	4,500	57
Ho Xa	2,000	2,000	2,000	800	100	40	14,000	6,000	43
Thang Binh	2,500	2,500	2,060	116	82	5	13,750	1,750	13
Average	3,323	3,323	3,161	883	95	27	17,653	6,261	35

Source: Monitoring Report in the Water Supply Project (May 2003)

Among the 4 provinces visited (Quang Tri Province, Hue Province, Quang Nam Province and Quang Ninh Province), the following actions had been taken to extend the coverage areas with water supply: (1) exemption of connection fees among low-income consumers; (2) undertaking PR activities to expand the service population (Quang Ninh Province); (3) promotion of settlements in new urban development areas; and, (4) development of pipe systems. Each province shares the opinion that it is imperative to expand pipe systems in order to maximize the effects of the project. In this spirit, provinces make their own efforts; Quang Tri province utilizes funds from HEPR, while Hue province is changing the project scope to include construction of a pipe system.

[15] Water was not supplied to residents in Kim Son at the time of monitoring because the water supply facilities were still being given a trial run due to delays in their construction. Water supply to the area was commenced in 2004. (Service population: 11,250; average water supply: 1,500m^3/day in 2004)

(2) Water quality

Table 6 shows water quality in water supply stations in the 4 provinces targeted in the case study and the water quality criteria of the country[16]. The quality of treated water in the water supply stations[17] are monitored regularly at a small laboratory in the plant. Additionally, the sample of water is also sent to a large laboratory in the region to examine the items which cannot be examined in the small laboratory. As comparing the latest monitoring records obtained in the ex-post evaluation with the national standard of water quality, it was found that pH and Residual Chlorine of Quang Ninh and Dong Trieu provinces exceeded the standard. Since the figures of Residual Chlorine can have different results based on at which point it is tested, it is difficult to compare accurately. However, the water supply companies, which are in charge of operation and maintenance of the systems, and the project management consultants said that there had been no major issues in water quality[18]. Moreover, they are planning to employ a professional officer and expect to solve the issue of pH by the end of this year.

Table 6. Water Quality in the Field Study's Target Water Supply Stations

	Turbidity (NTU)		pH		Chlorine Ion (mg/l)		Residual Chlorine (mg/l)	
	before	after	before	after	before	after	before	after
Quang Tri	8.0	2.0	8.1	7.1	-	1.5	0.4	0.3
TT Hue	1.0-2.5	0.3-0.8	6.5-7.0	7.3-8.2	11.7	11.7	0.0	0.3-0.5
Quang Nam	-	2.0	-	7.6	10.7	7.1	0.0	0.5
Quang Ninh	6.0	1.0	5.6	5.6	-	-	0.3	0.05
National Standard	2.0		6.5-8.5		Below 250		0.3-0.5	

Source: Individual water supply companies

2.4 Impact[19]

2.4.1 Roads

(1) Improvements in living conditions

In the beneficiary survey, 93% of respondents said that living conditions were considerably or partially improved after the project. Fig. 1 shows the ratio of responses to items in relation to what was improved in connection with local living conditions. Various impacts can be seen on the table: improved access to schools, hospitals and markets; establishment of stores and factories; and generation of non-farm employment.

[16] No study of water quality had been conducted at the time of ex-post evaluation.
[17] Five water supply stations were visited in the field survey: Ho Xa, Lao Bao (Quang Tri Province), Chan May (TT Hue Province), Thang Binh (Quang Nam Province) and Dong Trieu (Quang Ninh Province).
[18] According to the project management consultants, there are no Coliforms or E. coli contents found in these water supply stations.
[19] In the section of Impact, the description is based on the results of the beneficiary survey conducted under the current research (on 300 residents in Quang Tri Province, Quang Ninh Province, Hue Province and Quang Nam Province).

Fig. 1 Improvement of Local Living Conditions (%)

Fig. 2 Road No. 68 in Hue Province

(2) Economic development in the target areas

About 60% of respondents said that the transport volume of agriculture products had "increased considerably" or "increased to an extent" following the project. The reason is that agriculture products could now be transported by small trucks (3t) instead of carts (45kg), and the selling price of agriculture products rose due to easier access to the village by outside traders. In the beneficiary survey, respondents said that income has increased due to the development of tourism and establishment of factories and enterprises. (See Column 1.)。

Column 1. Example of Local Economic Development after the Road Project

Mr. A (30 years old), who keeps a food store along Road No. 68 (provincial road) in Hue Province, once made his living out of tailoring. After the road improvement under the project, however, the living conditions in his home village were improved. Therefore, he returned to his home and opened a food store in 2003. Thanks to the improvement, the number of residents in the village has been increasing year by year. Many people also visit the village from outside because it is now possible to travel by motorcycle. As a result, the number of visitors to his food store, which had been about 10 a day at the time of opening, has increased to 40 today.

(3) Negative impacts

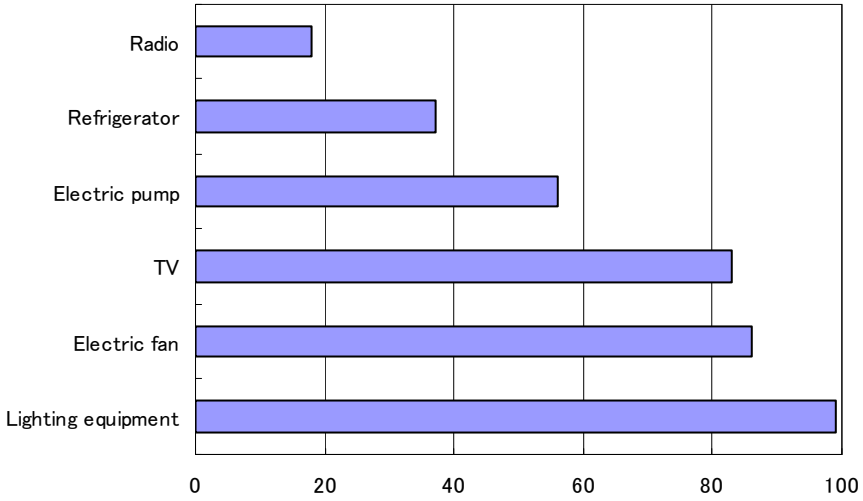
In the beneficiary survey, some negative impacts were also mentioned. There are more conflicts between outsiders and young villagers occurred with the increase of people's coming and going. Bigger traffic volume has brought problems of noise and dust. There was also anecdotal evidence of more frequent traffic accidents due to the increase in traffic volume and dangerous, high-speed driving.

2.4.2 Electricity

(1) Improve living conditions

Fig. 2 shows what electrical appliances are used in households. Almost 100% of electrified households have electric light. Electric fans and televisions are used in over 80% of households.

Fig. 3 Electrical Appliances Used in Electrified Households (%)



<Improvement in information and education>

About 97% of respondents benefited from better access to information and improved educational environment after the project. In particular, TV has become popular among almost all households, and people can obtain information through TV. Electric light changed children's study habits, such as increasing hours to study in the evening. Some schools are now equipped with TV and computers, which changes teaching methodologies.

<Improvements in housework>

About 90% of respondents said that household workload was considerably or partially lightened after the project. Household working hours were shortened (by 30 minutes to four hours) with electric light, electric cookers and electric water pumping machines.

<Other impacts>

Food hygiene was made better due to refrigerators. Health services were improved with the use of medical apparatus in medical centers. Besides, safe movement became possible.

(2) Economic Development in the Targeted Areas

Wood and food processing factories, shrimp farms, machine factories, and internet cafes were newly established in the villages electrified by the project. Electric lights help people to work more efficiently, increasing agricultural productivity and average income (See Column 2). Since people can work longer in the evening, the quality of traditional work has improved and income has also increased. Irrigated agriculture has also benefited with the use of groundwater-drawing pumps.

Column 2. Example of Local Economic Development after the Electrification Project

Mr. B works as a furniture craftsman in Vin Thu Village in Quang Tri Province. After the village had been electrified in 1998, he purchased 5 electric machines for processing wood at 25 million Dong (about 190 thousand yen) in 2000. By using electric machinery, he can improve the quality of products and produce more products. As a result, sales, which were 15 million Dong (about 110,000 yen) a year before using electric machinery, have doubled to 30 million Dong today.

Fig. 4 A Furniture Craftsman in Quang Tri Province

2.4.3 Water supply

(1) Improvements in living conditions

<Improvement of families' health>

About 66% of respondents said that their family's health had been considerably or partially improved after the project completion. Before the project, people drew water from small streams and wells. However, this water was polluted by animal excretion, so people were easily affected by digestive ailments. It is believed that water-borne diseases have certainly decreased after the project.

<Reduction in time spent drawing water>

According to answers from water utility users, the amount of time spent drawing water was reduced by up to one hour (average 17 minutes) per day compared to before the project. According to the beneficiary survey, people can spend more time on other housework by saving the amount of time spent on obtaining water.

<Other impacts>

People can get clean water even in the rainy season, and now tend to use water to clean their floors more often.

Column 3. Example of Local Economic Development after the Water Supply Project

Mrs. C (39 years old), living in Quang Nam Province, is a mother of two children. She has been using water supply facilities set by the project since 4 months ago. Before that, she used well water or spring water. At present, she is using tap water for cooking and drinking, and well water for laundry and bathing. Before using tap water, she had to

Fig. 5 A User of Tap Water

go to a spring to draw water in the dry season (February to August). She had to get up at 3 o'clock in the morning to get water because the spring would be dried up by other people are also coming. She had to spend 3 to 4 hours drawing water every morning. Since she started to use tap water, she can use water anytime; she also says that water-borne diseases have decreased.

(2) Economic development in the targeted areas

The improvement of water facilities has contributed to attract investment and support economic development in the areas where settlement to industrial zones have been promoted (like Quang Tri Province) although quantitative data was not available in the research.

2.4.4 Overall impact

Since the Government of Vietnam and other donors have conducted similar projects (regionally-dispersive, small-scale infrastructure projects) in Vietnam around the same time, it is difficult to attribute impacts only from this project (See Column 4)[20]. However, here we consider how the project contributed to improvement of local living conditions and economic development in the targeted areas, with a focus on the road project.

Column 4. Main Similar Projects

- Hunger Eradication and Poverty Reduction (HEPR, Government of Vietnam)
- Program 135 (Government of Vietnam)
- Rural Transport I,II (WB,DFID)
- Community Based Infrastructure (WB)
- Rural Infrastructure (ADB)
- Provincial Road Improvement (ADB)
- 3rd Provincial Towns Water Supply and Sanitation (ADB)

The access to rural roads (provincial, district and communal roads) at the national level has improved from 73% of the rural population in 1999 to 76% in 2004. This means that around 2.5 million could access to rural roads additionally during the period. According to the report of "Inquiry into the Poverty Rate and Access to Roads in Mekong Delta," there exists a strong relationship between poverty and lack of road access[21]. Given the relationship, it can be said that the project has brought the improvement of rual access nationwide, and it further contributed to poverty reduction.

For instance, in Quang Nam Province, GDP has increased at a rate of 10.3% a year and

[20] The competent ministry of HEPR is Ministry of Labour, Invalids and Social Affairs (MOLISA). The project objectives are to reduce the number of poor households (MOLISA Standards) to below 10% of the total number of households in the country and to assist minorities in especially difficult circumstances to through gaining access to industrial goods, public services and social networks. The projects consist of medical support, educational support, assistance to minority groups, assistance to the socially vulnerable, aid in the production and development of the small-scale manufacturing and handicraft industries. Credit support to poor people, settlement to new economic zones and settlement are also included in the policies. About 14.7 trillion Dong (about 117.6 billion yen) was provided from 1996 to 2002. On the other hand, the main agency of Program 135 is the Committee on Ethnic Minorities Affairs (CEMA). The project's objectives are to rapidly improve the material and spiritual lives of minorities in mountainous areas and people in remote locations who have special difficulties and create an environment for them to overcome poverty and lack of development, and thereby contributing to the development and integration of the whole nation, the social order and safety and national security and defense. For the objectives, the construction of small-scale socio-economic infrastructures was implemented in 1,715 districts. The number of target districts was expanded to 2,362 later. About 6 trillion Dong (about 48 billion yen) was provided from 1998 to 2003. Both projects were jointly evaluated in 2004 with support from UNDP. Subsequent projects are being prepared at present. Sources: "Poverty Reduction Policies in Vietnam - Background of Vietnamese Leaders' Recognition and Change" (2004, Shozo Sakata), "Taking Stock, Planning Ahead: Evaluation of the National Targeted Programme on Hunger Eradication and Poverty Reduction and Programme 135." (2004, MOLISA and UNDP)

[21] Refer to Vietnam Managing Public Expenditure for Poverty Reduction and Growth, 2005.

poverty rate has decreased 23.7% in 2001 to 12% in 2004. According to the implementing agencies, improved access leads to economic development and growth of employment (14,000 new jobs in the past five years). Because the poverty rate of the targeted project areas has generally decreased, it can be concluded that the project has significantly contributed to improved living conditions and economic development in these areas. The number of beneficiaries estimated in the project is as follows.

- Roads: About 14.3 million people (the population of Tokyo: about 12 million)[22]
- Electricity: About 1.3 million people (the population of Okinawa Prefecture: about 1.35 million)
- Water: 81,387 people (the population of Akiruno City, Tokyo: about 80 thousand)

2.5 Sustainability

2.5.1 Overall project

The Ministry of Planning and Investment (MPI) took initiative for overall coordination at each stage of the project. The Department of Planning and Investment (DPI) of each province and district implemented the project under the supervision of MPI. After the completion of the project, operation and maintenance of the project was transferred to each district and commune.

2.5.2 Road

(1) Operational structure and technical capacity

Operation and maintenance has been the responsibility of each province, district and commune. At the commune level, people living near the road observe the construction of roads and provide labor for maintenance works.

With regard to technique, each province does not have its own technical manual. Operation and maintenance has been conducted following the Guidebook on Maintenance published by the Road Department. Every year, staffs were sent to training courses organized by the World Bank and the Department For International Development (DFID) of the United Kingdom. Therefore, there are no technical problems at the provincial level. However, at the district and commune levels, technical capacity and skill levels are not adequate. Management representatives are uncertain and maintenance manuals are not put into practice at these levels.

(2) Financial status

The budget allocated for the road maintenance depends on the financial status of the province, as it is a part of the provincial budget.[23] There are no significant financial problems

[22] When a sub-project of road construction: Target area ((total length of the road + 3km)) x width of 6 km (3km each on both sides of the road)) × the average population density of a province (calculated according to 2004 Office for National Statistics Data). When a sub-project of bridge construction: Target area ((total length of the road + 6km)) x width of 6 km (3km each on both sides of the road)) × the average population of a province.

[23] The situation is worse for the provincial road network as it appears that only 4-5% of provincial budgets is spent on road maintenance activities. It is thus difficult for poor provinces in bad financial condition to operate and maintain roads. (Source: Vietnam Managing

in Quang Tri and Thua Thien Hue Provinces. However, in Quang Nam Province, for the road maintenance does not have enough fund.

(3) Operation and maintenance

Some roads have been damaged by the weight of vehicles. The embankment and drainage system of some roads were insufficient. Roads which were damaged by typhoons and floods were repaired in Quang Tri and Thua Thien Hue Provinces. Thus there is no problem in operation and maintenance status in Quang Tri and Thua Thien Hue Provinces. However in Quang Nam Province, some damaged roads were not properly repaired, due to lack of funding.

2.5.3 Electricity

(1) Organizational structure and technical capacity

The operation and maintenance system of the electricity sector is classified as the following.

(1) Direct control by EVN: Provincial Power Company (PPC), which belongs to Electricity of Vietnam (EVN), has implemented a sub-project under the supervision of DPI and DOI. The Electricity Cooperation of each commune is in charge of the collection of electricity tariffs.
(2) Control under local government: PPC has implemented a sub-project under the supervision of DPI and Department of Industries (DOI). The Electricity Cooperative of each commune is in charge of the collection of electricity tariffs.

The cooperative staffs at each commune are required to obtain degree from industrial secondary school. They also participate in short-term training courses offered by the Ministry of Industry in order to maintain or improve their technical level.

(2) Financial status

EVN runs as a financially independent entity. The collection rate for electricity charges is quite high, and there are no financial problems.

(3) Operation and maintenance

There are no issues in operation and maintenance of electricity facilities constructed by this project.

2.5.4 Water supply

(1) Organizational structural and technical capacity

The Water Supply Company is in charge of operation and maintenance as well as collection of water tariffs at the provincial level.

Public Expenditure for Poverty Reduction and Growth, 2005)

According to results of the case study, there is no problem with technical capacity, as trainings are conducted on regular basis together with on-the-job trainings. However, according to the monitoring report (May 2003), there is no operational and maintenance manual and the technical level of staff is not sufficient for water supply stations.

(2) Financial status

The Water Supply Company runs as a financially independent entity. The monitoring report says that most water supply stations have suffered financial problems due to low water utilization rates. However, according to the result of the case study, at the water supply stations in Quang Tri and Quang Nam Provinces, the financial situation improved as revenue grew along with the water utilization rate.

(3) Operation and maintenance

According to the monitoring report, there are common problems in operation and maintenance; the Water Supply Company cannot conduct water quality check regularly due to the lack of equipment or laboratory. Moreover, it points out the fact that procured equipment and designs do not match the quality of raw water or environmental conditions.

2.5.5 Overall sustainability of the project

We can evaluate the sustainability of the project in the respective sectors as follows. As for the rural road project, some problems are pointed out at the district/commune level, although there is no problem regarding technique at the provincial level. There are differences among operation and maintenance conditions according to the financial status of the provincial governments. It is acknowledged that there is room for improvement in technique, financial affairs and operation and maintenance in general with regard to the water supply project. There is no particular problem in the sustainability of the rural electrification project.

As the above, it is difficult to evaluate sustainability across the board, given that circumstances are different among the respective sectors and provinces. However, it can be judged that although there is a little concern about the sustainability of the project, there are generally no major problems.

3. Feedback

3.1 Lessons Learned

(1) Lessons learned in the water supply project

Efforts to improve the quality of survey at planning and F/S are necessary

The problem of the water service population and facility usage rate falling below planned figures has been pointed out; however, it is mainly because of the fact that demand arising from the service population and urban growth was overestimated at the planning phase and

F/S. In Quang Nam Province, the design of the water supply station does not adapt to the change in the water quality in dry and rainy seasons, so the station operates at half the capacity in the rainy season. In order to avoid these problems in the future, there need to be some efforts to conduct quality surveys at the time of planning and F/S. For example, residents' needs, identification of service areas and quality of intake water (both at day and rainy seasons) should be carefully analyzed. If a new development area as is included as a service area, the future plan of the area should be carefully considered.

It is necessary to examine future planning carefully when a new urban development zone is selected as the target area of the water supply project

When a new urban development zone is selected as the target area of the water supply project, it is necessary to examine future planning carefully, strengthen monitoring of construction and select an appropriate design to fit in with local conditions.

(2) Lessons learned in the road project

It is beneficial to conduct seminars and training on basic traffic data

Since basic traffic data (such as traffic volume) is not available at the post evaluation study, it is difficult to evaluate the project based on actual achievement. To improve the road sector development plan, MPI and MOT should conduct seminars and training sessions on basic traffic data collection for local agencies.

3.2 Recommendations

(1) Recommendations regarding the water supply project

It is necessary to expand the service population in the target areas

In order to extend the area of water supply coverage, both the development of the pipe system and PR activities to expand the service population are necessary. If possible, while maintaining financial sustainability, the reduction of connection fees and water tariffs for low-income consumers should be examined and promoted. In order to enhance the effect of the water supply project, it is beneficial to consider support not only water facilities but also pipe network. When land acquisition is required, it is necessary to consider an alternative with a smaller-scale of land acquisition and make efforts to obtain a consensus with the general public by holding meetings to explain to local residents from the early phases of planning and implementing phases, so that land acquisition can be smoothly implemented.

It is necessary for operational staffs of water facilities to improve their ability in operation and maintenance

In order to improve the ability of operational staff of water facilities, preparation of operation and maintenance manuals and regular training on facility operation and chemical treatment are recommended.

(2) Recommendations regarding the road project

Damaged roads should be promptly and properly repaired

Some roads were destroyed or damaged by the increased traffic volume and weight of vehicles. In some cases, it required a large-scale construction from the foundation, and in other cases, the rehabilitation does not cover the whole road and remains disrupted. Damaged roads should be promptly and properly repaired.

(3) Recommendation regarding the implementation system

Recommendation to Project Management Unit (PMU) and operating agencies

It is necessary to improve the implementation system at the district and commune levels

It is pointed out that paving techniques and materials are inadequate for performing adequate maintenance in local road projects. It is also pointed out that some water facilities do not have enough facilities and chemicals required for conducting water quality tests. PMU and operating agencies should pay more attention to improving the technical capacity of operational staff and to the procurement of supplies and equipment at the district and commune levels for roads construction and maintenance.

Recommendation to DPI and Provincial Project Management Unit (PPMU)

It is important to strengthen operation and maintenance capability at the local level

Operation and maintenance systems at the local level differ sharply among provinces. Responsibility is not clearly defined, as some provinces have not conducted regular monitoring of project facilities since completion of the project. It is important to strengthen operation and maintenance capability at the local level to conduct appropriate maintenance by local agencies and report the monitoring results to MPI on a regular basis.

Recommendation to MPI and Program Management Board

The project monitoring system should be established so that MPI can proactively monitor

MPI is in charge of monitoring and evaluation of the project. However, due to lack of staffs and funds, the monitoring system does not have enough function. Given the technology transfer from the project consultant to MPI, there needs the project monitoring system so that MPI can proactively monitor by utilizing local updated reports.

Comparison of Original and Actual Scope

Item	Plan	Actual
(1) Outputs Phase I	1) Rehabilitation/improvement of provincial roads (approx. 800km) 2) Construction/improvement of the electricity distribution system (60 non-electrified villages) 3) Construction/improvement of water supply stations in 20 local cities (More than 5,000m^3/day) 4) Consulting services	1) 154 projects, road length 1,140.82km 2) 168 projects, line length 8,381.3km, total capacity 221,546kVA 3) 13 cities (12 provinces) 4) According to plan
Phase II	1) Rehabilitation/improvement of provincial roads (300km), urban roads (200km) and bridges (220km) 2) Construction/improvement of the electricity distribution system (15 non-electrified villages, line length 800km, 100 transformers, total capacity 10,000kVA) 3) Consulting services	1) 142 projects, road length 1,056.25km 2) 191 projects, line length 3,632km, total capacity 71,952kVA 3) According to plan
(2) Project Period Phase I	March 1996-February 1998 (24 months)	March 1996-July 2002 (77 months)
Phase II	March 1997-December 1999 (34 months)	March 1997-December 2002 (70 months)
(3) Project Cost Phase I Foreign currency Local currency Total ODA Loan Portion Exchange rate	 4,108 million yen 4,128 million yen (412,800 million Dong) 8,236 million yen 7,000 million yen 1 Dong = 0.01 yen (As of March 1996)	 5,754 million yen 5,032 million yen (570,774 million Dong) 10,786 million yen 6,854 million yen 1 Dong = 0.008 yen (Average in the period from 1998 through 2001)
Phase II Foreign currency Local currency Total ODA Loan Portion Exchange rate	 1,396 million yen 3,310 million yen (331,000 million Dong) 4,706 million yen 4,000 million yen 1 Dong = 0.01 yen (As of February 1997)	 4,427 million yen 2,175 million yen (436,631 million Dong) 6,602 million yen 3,509 million yen 1 Dong = 0.008 yen (Average in the period from 1999 through 2002)